SEQUENCE LISTING

<110> Shinohara, Toshimichi
Shingh, Dhirendra P.
Chylack, Leo T.

<120> Lens Epithelial Cell Derived Growth Factor

<130> B0801/7116

<140> Unknown
<141> 1998-07-23

<150> U.S. 60/053,549
<151> 1997-07-23

<160> 22

<170> FastSEQ for Windows Version 3.0

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gacgccccga ggcatcctcc cccgcccgcg ggcccggtag ctgggcccgc gtccgccgcc    240
cgcatccccg cgccgccgca tctcctcgcc gcctcccggg cttcggaccc ccggtctcgc    300
ccccggaaac  atg act cgc gat ttc aaa cct gga gac ctc atc ttc gcc       349
            Met Thr Arg Asp Phe Lys Pro Gly Asp Leu Ile Phe Ala
             1               5                  10

aag atg aaa ggt tat ccc cat tgg cca gct cga gta gac gaa gtt cct      397
Lys Met Lys Gly Tyr Pro His Trp Pro Ala Arg Val Asp Glu Val Pro
     15                  20                  25

gat gga gct gta aag cca ccc aca aac aaa cta ccc att ttc ttt ttt      445
Asp Gly Ala Val Lys Pro Pro Thr Asn Lys Leu Pro Ile Phe Phe Phe
 30                  35                  40                  45

gga act cat gag act gct ttt tta gga cca aag gat ata ttt cct tac      493
Gly Thr His Glu Thr Ala Phe Leu Gly Pro Lys Asp Ile Phe Pro Tyr
                 50                  55                  60

tca gaa aat aag gaa aag tat ggc aaa cca aat aaa aga aaa ggt ttt      541
Ser Glu Asn Lys Glu Lys Tyr Gly Lys Pro Asn Lys Arg Lys Gly Phe
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                65                  70                  75

aat gaa ggt tta tgg gag ata gat aac aat cca aaa gtg aaa ttt tca      589
Asn Glu Gly Leu Trp Glu Ile Asp Asn Asn Pro Lys Val Lys Phe Ser
        80                  85                  90

agt caa cag gca gca act aaa caa tca aat gca tca tct gat gtt gaa      637
Ser Gln Gln Ala Ala Thr Lys Gln Ser Asn Ala Ser Ser Asp Val Glu
    95                  100                 105

gtt gaa gaa aag gaa act agt gtt tca aag gaa gat acc gac cat gaa      685
Val Glu Glu Lys Glu Thr Ser Val Ser Lys Glu Asp Thr Asp His Glu
110                 115                 120                 125

gaa aaa gcc agc aat gag gat gtg act aaa gca gtt gac ata act act      733
Glu Lys Ala Ser Asn Glu Asp Val Thr Lys Ala Val Asp Ile Thr Thr
                130                 135                 140

cca aaa gct gcc aga agg ggg aga aag aga aag gca gaa aaa caa gta      781
Pro Lys Ala Ala Arg Arg Gly Arg Lys Arg Lys Ala Glu Lys Gln Val
            145                 150                 155

gaa act gag gag gca gga gta gtg aca aca gca aca gca tct gtt aat      829
Glu Thr Glu Glu Ala Gly Val Val Thr Thr Ala Thr Ala Ser Val Asn
        160                 165                 170

cta aaa gtg agt cct aaa aga gga cga cct gca gct aca gaa gtc aag      877
Leu Lys Val Ser Pro Lys Arg Gly Arg Pro Ala Ala Thr Glu Val Lys
    175                 180                 185

att cca aaa cca aga ggc aga ccc aaa atg gta aaa cag ccc tgt cct      925
Ile Pro Lys Pro Arg Gly Arg Pro Lys Met Val Lys Gln Pro Cys Pro
190                 195                 200                 205

tca gag agt gac atc att act gaa gag gac aaa agt aag aaa aag ggg      973
Ser Glu Ser Asp Ile Ile Thr Glu Glu Asp Lys Ser Lys Lys Lys Gly
                210                 215                 220

caa gag gaa aaa caa cct aaa aag cag cct aag aag gat gaa gag ggc     1021
Gln Glu Glu Lys Gln Pro Lys Lys Gln Pro Lys Lys Asp Glu Glu Gly
            225                 230                 235

cag aag gaa gaa gat aag cca aga aaa gag ccg gat aaa aaa gag ggg     1069
Gln Lys Glu Glu Asp Lys Pro Arg Lys Glu Pro Asp Lys Lys Glu Gly
        240                 245                 250

aag aaa gaa gtt gaa tca aaa agg aaa aat tta gct aaa aca ggg gtt     1117
Lys Lys Glu Val Glu Ser Lys Arg Lys Asn Leu Ala Lys Thr Gly Val
    255                 260                 265

act tca acc tcc gat tct gaa gaa gaa gga gat gat caa gaa ggt gaa     1165
Thr Ser Thr Ser Asp Ser Glu Glu Glu Gly Asp Asp Gln Glu Gly Glu
270                 275                 280                 285

aag aag aga aaa ggt ggg agg aac ttt cag act gct cac aga agg aat     1213
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Lys Lys Arg Lys Gly Gly Arg Asn Phe Gln Thr Ala His Arg Arg Asn
                290                 295                 300

atg ctg aaa ggc caa cat gag aaa gaa gca gca gat cga aaa cgc aag      1261
Met Leu Lys Gly Gln His Glu Lys Glu Ala Ala Asp Arg Lys Arg Lys
            305                 310                 315

caa gag gaa caa atg gaa act gag cag cag aat aaa gat gaa gga aag      1309
Gln Glu Glu Gln Met Glu Thr Glu Gln Gln Asn Lys Asp Glu Gly Lys
        320                 325                 330

aag cca gaa gtt aag aaa gtg gag aag aag cga gaa aca tca atg gat      1357
Lys Pro Glu Val Lys Lys Val Glu Lys Lys Arg Glu Thr Ser Met Asp
    335                 340                 345

tct cga ctt caa agg ata cat gct gag att aaa aat tca ctc aaa att      1405
Ser Arg Leu Gln Arg Ile His Ala Glu Ile Lys Asn Ser Leu Lys Ile
350                 355                 360                 365

gat aat ctt gat gtg aac aga tgc att gag gcc ttg gat gaa ctt gct      1453
Asp Asn Leu Asp Val Asn Arg Cys Ile Glu Ala Leu Asp Glu Leu Ala
                370                 375                 380

tca ctt cag gtc aca atg caa caa gct cag aaa cac aca gag atg att      1501
Ser Leu Gln Val Thr Met Gln Gln Ala Gln Lys His Thr Glu Met Ile
            385                 390                 395

act aca ctg aaa aaa ata cgg cga ttc aaa gtt agt cag gta atc atg      1549
Thr Thr Leu Lys Lys Ile Arg Arg Phe Lys Val Ser Gln Val Ile Met
        400                 405                 410

gaa aag tct aca atg ttg tat aac aag ttt aag aac atg ttc ttg gtt      1597
Glu Lys Ser Thr Met Leu Tyr Asn Lys Phe Lys Asn Met Phe Leu Val
    415                 420                 425

ggt gaa gga gat tcc gtg atc acc caa gtg ctg aat aaa tct ctt gct      1645
Gly Glu Gly Asp Ser Val Ile Thr Gln Val Leu Asn Lys Ser Leu Ala
430                 435                 440                 445

gaa caa aga cag cat gag gaa gcg aat aaa acc aaa gat caa ggg aag      1693
Glu Gln Arg Gln His Glu Glu Ala Asn Lys Thr Lys Asp Gln Gly Lys
                450                 455                 460

aaa ggg cca aac aaa aag cta gag aag gaa caa aca ggg tca aag act      1741
Lys Gly Pro Asn Lys Lys Leu Glu Lys Glu Gln Thr Gly Ser Lys Thr
            465                 470                 475

cta aat gga gga tct gat gct caa gat ggt aat cag cca caa cat aac      1789
Leu Asn Gly Gly Ser Asp Ala Gln Asp Gly Asn Gln Pro Gln His Asn
        480                 485                 490

ggg gag agc aat gaa gac agc aaa gac aac cat gaa gcc agc acg aag      1837
Gly Glu Ser Asn Glu Asp Ser Lys Asp Asn His Glu Ala Ser Thr Lys
    495                 500                 505
```

```
aaa aag cca tcc agt gaa gag aga gag act gaa ata tct ctg aag gat     1885
Lys Lys Pro Ser Ser Glu Glu Arg Glu Thr Glu Ile Ser Leu Lys Asp
510                 515                 520                 525

tct aca cta gat aac taggttgaca tacctggaat atagagaaca cttgagaagt     1940
Ser Thr Leu Asp Asn
                530

ttgtaatggt tttcatttga aatagactgc tggaagttta aatttttata agcataggtt   2000
tgatgttgaa aacttgtttt gagggagaaa atccctttgt tttaaagtaa agtaaacatt   2060
atcgctaagt gtaacttgtg cagtattaac agctacatta tacagtaaat gtgggataaa   2120
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tgtgtgtatg ttaatgtgta attgatagta gaacaaagtt acatttttaa aactgctact   2240
tgtataaacc ttgcctcttt tcccaaatac tgtgggtttt gtgcatagtt tttacaaacc   2300
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tttggtcctt atacagtttt aacttactta gatttattct agttaagcca taagttcaac   3320
gtgtaaactt gttttcatta aagaattttt ctatcaaaaa                         3360
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<210> 2
<211> 530
<212> PRT
<213> Homo Sapiens

<400> 2

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Met Thr Arg Asp Phe Lys Pro Gly Asp Leu Ile Phe Ala Lys Met Lys
 1               5                  10                  15
Gly Tyr Pro His Trp Pro Ala Arg Val Asp Glu Val Pro Asp Gly Ala
            20                  25                  30
Val Lys Pro Pro Thr Asn Lys Leu Pro Ile Phe Phe Phe Gly Thr His
        35                  40                  45
Glu Thr Ala Phe Leu Gly Pro Lys Asp Ile Phe Pro Tyr Ser Glu Asn
    50                  55                  60
Lys Glu Lys Tyr Gly Lys Pro Asn Lys Arg Lys Gly Phe Asn Glu Gly
65                  70                  75                  80
Leu Trp Glu Ile Asp Asn Asn Pro Lys Val Lys Phe Ser Ser Gln Gln
                85                  90                  95
Ala Ala Thr Lys Gln Ser Asn Ala Ser Ser Asp Val Glu Val Glu Glu
            100                 105                 110
Lys Glu Thr Ser Val Ser Lys Glu Asp Thr Asp His Glu Glu Lys Ala
        115                 120                 125
```

Ser Asn Glu Asp Val Thr Lys Ala Val Asp Ile Thr Thr Pro Lys Ala
130 135 140
Ala Arg Arg Gly Arg Lys Arg Lys Ala Glu Lys Gln Val Glu Thr Glu
145 150 155 160
Glu Ala Gly Val Val Thr Thr Ala Thr Ala Ser Val Asn Leu Lys Val
165 170 175
Ser Pro Lys Arg Gly Arg Pro Ala Ala Thr Glu Val Lys Ile Pro Lys
180 185 190
Pro Arg Gly Arg Pro Lys Met Val Lys Gln Pro Cys Pro Ser Glu Ser
195 200 205
Asp Ile Ile Thr Glu Glu Asp Lys Ser Lys Lys Lys Gly Gln Glu Glu
210 215 220
Lys Gln Pro Lys Lys Gln Pro Lys Lys Asp Glu Glu Gly Gln Lys Glu
225 230 235 240
Glu Asp Lys Pro Arg Lys Glu Pro Asp Lys Lys Glu Gly Lys Lys Glu
245 250 255
Val Glu Ser Lys Arg Lys Asn Leu Ala Lys Thr Gly Val Thr Ser Thr
260 265 270
Ser Asp Ser Glu Glu Glu Gly Asp Asp Gln Glu Gly Glu Lys Lys Arg
275 280 285
Lys Gly Gly Arg Asn Phe Gln Thr Ala His Arg Arg Asn Met Leu Lys
290 295 300
Gly Gln His Glu Lys Glu Ala Ala Asp Arg Lys Arg Lys Gln Glu Glu
305 310 315 320
Gln Met Glu Thr Glu Gln Gln Asn Lys Asp Glu Gly Lys Lys Pro Glu
325 330 335
Val Lys Lys Val Glu Lys Lys Arg Glu Thr Ser Met Asp Ser Arg Leu
340 345 350
Gln Arg Ile His Ala Glu Ile Lys Asn Ser Leu Lys Ile Asp Asn Leu
355 360 365
Asp Val Asn Arg Cys Ile Glu Ala Leu Asp Glu Leu Ala Ser Leu Gln
370 375 380
Val Thr Met Gln Gln Ala Gln Lys His Thr Glu Met Ile Thr Thr Leu
385 390 395 400
Lys Lys Ile Arg Arg Phe Lys Val Ser Gln Val Ile Met Glu Lys Ser
405 410 415
Thr Met Leu Tyr Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu Gly
420 425 430
Asp Ser Val Ile Thr Gln Val Leu Asn Lys Ser Leu Ala Glu Gln Arg
435 440 445
Gln His Glu Glu Ala Asn Lys Thr Lys Asp Gln Gly Lys Lys Gly Pro
450 455 460
Asn Lys Lys Leu Glu Lys Glu Gln Thr Gly Ser Lys Thr Leu Asn Gly
465 470 475 480
Gly Ser Asp Ala Gln Asp Gly Asn Gln Pro Gln His Asn Gly Glu Ser
485 490 495
Asn Glu Asp Ser Lys Asp Asn His Glu Ala Ser Thr Lys Lys Lys Pro
500 505 510
Ser Ser Glu Glu Arg Glu Thr Glu Ile Ser Leu Lys Asp Ser Thr Leu
515 520 525
Asp Asn
530

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<213> Homo Sapiens

<220>
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<222> (1)...(57)

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ttt ttt gga act cat gag act gct ttt tta gga cca aag gat ata ttt        48
Phe Phe Gly Thr His Glu Thr Ala Phe Leu Gly Pro Lys Asp Ile Phe
 1               5                  10                  15

cct tac tca                                                             57
Pro Tyr Ser
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<210> 4
<211> 19
<212> PRT
<213> Homo Sapiens

<400> 4
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Phe Phe Gly Thr His Glu Thr Ala Phe Leu Gly Pro Lys Asp Ile Phe
 1               5                  10                  15
Pro Tyr Ser
```

<210> 5
<211> 54
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (1)...(54)

<400> 5
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tat aac aag ttt aag aac atg ttc ttg gtt ggt gaa gga gat tcc gtg        48
Tyr Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu Gly Asp Ser Val
 1               5                  10                  15

atc acc                                                                 54
Ile Thr
```

<210> 6
<211> 18
<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(18)

<400> 6
Tyr Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu Gly Asp Ser Val
1 5 10 15
Ile Thr

<210> 7
<211> 1017
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (1)...(1017)

<400> 7
aaa cca aga ggc aga ccc aaa atg gta aaa cag ccc tgt cct tca gag 48
Lys Pro Arg Gly Arg Pro Lys Met Val Lys Gln Pro Cys Pro Ser Glu
1 5 10 15

agt gac atc att act gaa gag gac aaa agt aag aaa aag ggg caa gag 96
Ser Asp Ile Ile Thr Glu Glu Asp Lys Ser Lys Lys Lys Gly Gln Glu
20 25 30

gaa aaa caa cct aaa aag cag cct aag aag gat gaa gag ggc cag aag 144
Glu Lys Gln Pro Lys Lys Gln Pro Lys Lys Asp Glu Glu Gly Gln Lys
35 40 45

gaa gaa gat aag cca aga aaa gag ccg gat aaa aaa gag ggg aag aaa 192
Glu Glu Asp Lys Pro Arg Lys Glu Pro Asp Lys Lys Glu Gly Lys Lys
50 55 60

gaa gtt gaa tca aaa agg aaa aat tta gct aaa aca ggg gtt act tca 240
Glu Val Glu Ser Lys Arg Lys Asn Leu Ala Lys Thr Gly Val Thr Ser
65 70 75 80

acc tcc gat tct gaa gaa gaa gga gat gat caa gaa ggt gaa aag aag 288
Thr Ser Asp Ser Glu Glu Glu Gly Asp Asp Gln Glu Gly Glu Lys Lys
85 90 95

aga aaa ggt ggg agg aac ttt cag act gct cac aga agg aat atg ctg 336
Arg Lys Gly Gly Arg Asn Phe Gln Thr Ala His Arg Arg Asn Met Leu
100 105 110

aaa ggc caa cat gag aaa gaa gca gca gat cga aaa cgc aag caa gag 384
Lys Gly Gln His Glu Lys Glu Ala Ala Asp Arg Lys Arg Lys Gln Glu
115 120 125

gaa caa atg gaa act gag cag cag aat aaa gat gaa gga aag aag cca 432
Glu Gln Met Glu Thr Glu Gln Gln Asn Lys Asp Glu Gly Lys Lys Pro
130 135 140

gaa gtt aag aaa gtg gag aag aag cga gaa aca tca atg gat tct cga 480
Glu Val Lys Lys Val Glu Lys Lys Arg Glu Thr Ser Met Asp Ser Arg
145 150 155 160

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ctt caa agg ata cat gct gag att aaa aat tca ctc aaa att gat aat      528
Leu Gln Arg Ile His Ala Glu Ile Lys Asn Ser Leu Lys Ile Asp Asn
                165                 170                 175

ctt gat gtg aac aga tgc att gag gcc ttg gat gaa ctt gct tca ctt      576
Leu Asp Val Asn Arg Cys Ile Glu Ala Leu Asp Glu Leu Ala Ser Leu
            180                 185                 190

cag gtc aca atg caa caa gct cag aaa cac aca gag atg att act aca      624
Gln Val Thr Met Gln Gln Ala Gln Lys His Thr Glu Met Ile Thr Thr
        195                 200                 205

ctg aaa aaa ata cgg cga ttc aaa gtt agt cag gta atc atg gaa aag      672
Leu Lys Lys Ile Arg Arg Phe Lys Val Ser Gln Val Ile Met Glu Lys
    210                 215                 220

tct aca atg ttg tat aac aag ttt aag aac atg ttc ttg gtt ggt gaa      720
Ser Thr Met Leu Tyr Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu
225                 230                 235                 240

gga gat tcc gtg atc acc caa gtg ctg aat aaa tct ctt gct gaa caa      768
Gly Asp Ser Val Ile Thr Gln Val Leu Asn Lys Ser Leu Ala Glu Gln
                245                 250                 255

aga cag cat gag gaa gcg aat aaa acc aaa gat caa ggg aag aaa ggg      816
Arg Gln His Glu Glu Ala Asn Lys Thr Lys Asp Gln Gly Lys Lys Gly
            260                 265                 270

cca aac aaa aag cta gag aag gaa caa aca ggg tca aag act cta aat      864
Pro Asn Lys Lys Leu Glu Lys Glu Gln Thr Gly Ser Lys Thr Leu Asn
        275                 280                 285

gga gga tct gat gct caa gat ggt aat cag cca caa cat aac ggg gag      912
Gly Gly Ser Asp Ala Gln Asp Gly Asn Gln Pro Gln His Asn Gly Glu
    290                 295                 300

agc aat gaa gac agc aaa gac aac cat gaa gcc agc acg aag aaa aag      960
Ser Asn Glu Asp Ser Lys Asp Asn His Glu Ala Ser Thr Lys Lys Lys
305                 310                 315                 320

cca tcc agt gaa gag aga gag act gaa ata tct ctg aag gat tct aca     1008
Pro Ser Ser Glu Glu Arg Glu Thr Glu Ile Ser Leu Lys Asp Ser Thr
                325                 330                 335

cta gat aac                                                        1017
Leu Asp Asn
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<210> 8
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<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(339)

<400> 8

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Lys Pro Arg Gly Arg Pro Lys Met Val Lys Gln Pro Cys Pro Ser Glu
 1               5                  10                  15
Ser Asp Ile Ile Thr Glu Glu Asp Lys Ser Lys Lys Lys Gly Gln Glu
            20                  25                  30
Glu Lys Gln Pro Lys Lys Gln Pro Lys Lys Asp Glu Glu Gly Gln Lys
        35                  40                  45
Glu Glu Asp Lys Pro Arg Lys Glu Pro Asp Lys Lys Glu Gly Lys Lys
    50                  55                  60
Glu Val Glu Ser Lys Arg Lys Asn Leu Ala Lys Thr Gly Val Thr Ser
65                  70                  75                  80
Thr Ser Asp Ser Glu Glu Glu Gly Asp Asp Gln Glu Gly Glu Lys Lys
                85                  90                  95
Arg Lys Gly Gly Arg Asn Phe Gln Thr Ala His Arg Arg Asn Met Leu
            100                 105                 110
Lys Gly Gln His Glu Lys Glu Ala Ala Asp Arg Lys Arg Lys Gln Glu
        115                 120                 125
Glu Gln Met Glu Thr Glu Gln Gln Asn Lys Asp Glu Gly Lys Lys Pro
    130                 135                 140
Glu Val Lys Lys Val Glu Lys Lys Arg Glu Thr Ser Met Asp Ser Arg
145                 150                 155                 160
Leu Gln Arg Ile His Ala Glu Ile Lys Asn Ser Leu Lys Ile Asp Asn
                165                 170                 175
Leu Asp Val Asn Arg Cys Ile Glu Ala Leu Asp Glu Leu Ala Ser Leu
            180                 185                 190
Gln Val Thr Met Gln Gln Ala Gln Lys His Thr Glu Met Ile Thr Thr
        195                 200                 205
Leu Lys Lys Ile Arg Arg Phe Lys Val Ser Gln Val Ile Met Glu Lys
    210                 215                 220
Ser Thr Met Leu Tyr Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu
225                 230                 235                 240
Gly Asp Ser Val Ile Thr Gln Val Leu Asn Lys Ser Leu Ala Glu Gln
                245                 250                 255
Arg Gln His Glu Glu Ala Asn Lys Thr Lys Asp Gln Gly Lys Lys Gly
            260                 265                 270
Pro Asn Lys Lys Leu Glu Lys Glu Gln Thr Gly Ser Lys Thr Leu Asn
        275                 280                 285
Gly Gly Ser Asp Ala Gln Asp Gly Asn Gln Pro Gln His Asn Gly Glu
    290                 295                 300
Ser Asn Glu Asp Ser Lys Asp Asn His Glu Ala Ser Thr Lys Lys Lys
305                 310                 315                 320
Pro Ser Ser Glu Glu Arg Glu Thr Glu Ile Ser Leu Lys Asp Ser Thr
                325                 330                 335
Leu Asp Asn
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<210> 9
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(13)

<400> 9
Phe Ala Lys Met Lys Gly Tyr Pro His Trp Pro Ala Arg
1 5 10

<210> 10
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(15)

<400> 10
Phe Phe Phe Gly Thr His Glu Thr Ala Phe Leu Gly Pro Lys Asp
1 5 10 15

<210> 11
<211> 9
<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(9)

<400> 11
Gly Lys Pro Asn Lys Arg Lys Gly Phe
1 5

<210> 12
<211> 6
<212> PRT
<213> Homo Sapiens

<220>
<221> PEPTIDE
<222> (1)...(6)

<400> 12
Glu Gly Leu Trp Glu Ile
1 5

<210> 13
<211> 1586
<212> DNA
<213> Homo Sapiens

<400> 13
atgactcgcg atttcaaacc tggagacctc atcttcgcca agatgaaagg ttatccccat 60
tggccagctc gagtagacga agttcctgat ggagctgtaa agccacccac aaacaaacta 120

cccattttct tttttggaac tcatgagact gctttttag gaccaaagga tatatttcct 180
tactcagaaa ataaggaaaa gtatggcaaa ccaaataaaa gaaaaggttt taatgaaggt 240
ttatgggaga tagataacaa tccaaaagtg aaattttcaa gtcaacaggc agcaactaaa 300
caatcaaatg catcatctga tgttgaagtt gaagaaaagg aaactagtgt ttcaaaggaa 360
gataccgacc atgaagaaaa agccagcaat gaggatgtga ctaaagcagt tgacataact 420
actccaaaag ctgccagaag ggggagaaag agaaaggcag aaaaacaagt agaaactgag 480
gaggcaggag tagtgacaac agcaacagca tctgttaatc taaaagtgag tcctaaaaga 540
ggacgacctg cagctacaga agtcaagatt ccaaaaccaa gaggcagacc caaaatggta 600
aaacagccct gtccttcaga gagtgacatc attactgaag aggacaaaag taagaaaaag 660
gggcaagagg aaaaacaacc taaaaagcag cctaagaagg atgaagaggg ccagaaggaa 720
gaagataagc caagaaaaga gccggataaa aaagagggga agaaagaagt tgaatcaaaa 780
aggaaaaatt tagctaaaac aggggttact tcaacctccg attctgaaga agaaggagat 840
gatcaagaag gtgaaaagaa gagaaaaggt gggaggaact ttcagactgc tcacagaagg 900
aatatgctga aaggccaaca tgagaaagaa gcagcagatc gaaaacgcaa gcaagaggaa 960
caaatggaaa ctgagcagca gaataaagat gaaggaaaga agccagaagt taagaaagtg 1020
gagaagaagc gagaaacatc aatggattct cgacttcaaa ggatacatgc tgagattaaa 1080
aattcactca aaattgataa tcttgatgtg aacagatgca ttgaggcctt ggatgaactt 1140
gcttcacttc aggtcacaat gcaacaagct cagaaacaca cagagatgat tactacactg 1200
aaaaaaatac ggcgattcaa agttagtcag gtaatcatgg aaaagtctac aatgttgtat 1260
aacaagttta agaacatgtt cttggttggt gaaggagatt ccgtgatcac ccaagtgctg 1320
aataaatctc ttgctgaaca aagacagcat gaggaagcga ataaaaccaa agatcaaggg 1380
aagaaagggc caaacaaaaa gctagagaag gaacaaacag ggtcaaagac tctaaatgga 1440
ggatctgatg ctcaagatgg taatcagcca caacataacg gggagagcaa tgaagacagc 1500
aaagacaacc atgaagccag cacgaagaaa aagccatcca gtgaagagag agagactgaa 1560
atatctctga aggattctac actaga 1586

<210> 14
<211> 240
<212> PRT
<213> Homo Sapiens

<400> 14

Met	Ser	Arg	Ser	Asn	Arg	Gln	Lys	Glu	Tyr	Lys	Cys	Gly	Asp	Leu	Val
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Phe	Ala	Lys	Met	Lys	Gly	Tyr	Pro	His	Trp	Pro	Ala	Arg	Ile	Asp	Glu
			20					25					30		
Met	Pro	Glu	Ala	Ala	Val	Lys	Ser	Thr	Ala	Asn	Lys	Tyr	Gln	Val	Phe
		35					40					45			
Phe	Phe	Gly	Thr	His	Glu	Thr	Ala	Phe	Leu	Gly	Pro	Lys	Asp	Leu	Phe
	50					55					60				
Pro	Tyr	Glu	Glu	Ser	Lys	Glu	Lys	Phe	Gly	Lys	Pro	Asn	Lys	Arg	Lys
65					70					75					80
Gly	Phe	Ser	Glu	Gly	Leu	Trp	Glu	Ile	Glu	Asn	Asn	Pro	Thr	Val	Lys
				85					90					95	
Ala	Ser	Gly	Tyr	Gln	Ser	Ser	Gln	Lys	Lys	Ser	Cys	Val	Glu	Glu	Pro
			100					105					110		
Glu	Pro	Glu	Pro	Glu	Ala	Ala	Glu	Gly	Asp	Gly	Asp	Lys	Lys	Gly	Asn
		115					120					125			
Ala	Glu	Gly	Ser	Ser	Asp	Glu	Glu	Gly	Lys	Leu	Val	Ile	Asp	Glu	Pro
	130					135					140				
Ala	Lys	Glu	Lys	Asn	Glu	Lys	Gly	Ala	Leu	Lys	Arg	Arg	Ala	Gly	Asp
145					150					155					160
Leu	Leu	Glu	Asp	Ser	Pro	Lys	Arg	Pro	Lys	Glu	Ala	Glu	Asn	Pro	Glu
				165					170					175	
Gly	Glu	Glu	Lys	Glu	Ala	Ala	Thr	Leu	Glu	Val	Glu	Arg	Pro	Leu	Pro

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                180                           185                           190
Met Glu Val Glu Lys Asn Ser Thr Pro Ser Glu Pro Gly Ser Gly Arg
            195                          200                           205
Gly Pro Pro Gln Glu Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu Ala
    210                          215                           220
Thr Lys Glu Asp Ala Glu Ala Pro Gly Ile Arg Asp His Glu Ser Leu
225                          230                           235                          240
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<210> 15
<211> 237
<212> PRT
<213> Mus Musculus

<400> 15

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Met Ser Arg Ser Asn Arg Gln Lys Glu Tyr Lys Cys Gly Asp Leu Val
 1                   5                  10                  15
Phe Ala Lys Met Lys Gly Tyr Pro His Trp Pro Ala Arg Ile Asp Glu
                20                  25                  30
Met Pro Glu Ala Ala Val Lys Ser Thr Ala Asn Lys Tyr Gln Val Phe
            35                  40                  45
Phe Phe Gly Thr His Glu Thr Ala Phe Leu Gly Pro Lys Asp Leu Phe
    50                  55                  60
Pro Tyr Glu Glu Ser Lys Glu Lys Phe Gly Lys Pro Asn Lys Arg Lys
65                  70                  75                  80
Gly Phe Ser Glu Gly Leu Trp Glu Ile Glu Asn Asn Pro Thr Val Lys
                85                  90                  95
Ala Ser Gly Tyr Gln Ser Ser Gln Lys Lys Ser Cys Ala Ala Glu Pro
            100                 105                 110
Glu Val Glu Pro Glu Ala His Glu Gly Asp Gly Asp Lys Lys Gly Ser
        115                 120                 125
Ala Glu Gly Ser Ser Asp Glu Glu Gly Lys Leu Val Ile Asp Glu Pro
    130                 135                 140
Ala Lys Glu Lys Asn Glu Lys Gly Thr Leu Lys Arg Arg Ala Gly Asp
145                 150                 155                 160
Val Leu Glu Asp Ser Pro Lys Arg Pro Lys Glu Ser Gly Asp His Glu
                165                 170                 175
Glu Glu Asp Lys Glu Ile Ala Ala Leu Glu Gly Glu Arg His Leu Pro
            180                 185                 190
Val Glu Val Glu Lys Asn Ser Thr Pro Ser Glu Pro Asp Ser Gly Gln
        195                 200                 205
Gly Pro Pro Ala Glu Glu Glu Glu Gly Glu Glu Glu Ala Ala Lys Glu
    210                 215                 220
Glu Ala Glu Ala Pro Gly Val Arg Asp His Glu Ser Leu
225                 230                 235
```

<210> 16
<211> 510
<212> PRT
<213> Homo Sapiens

<400> 16

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Lys Glu Leu Glu Arg Leu Ser Pro Glu Glu Ala Ala His Gln Lys Ala
 1                   5                  10                  15
Val Val Glu Arg Leu Leu Gln Glu Asp Pro Trp His Val Ala Lys Leu
                20                  25                  30
```

Val Lys Ser Tyr Leu Gln Gln His Asn Ile Pro Gln Arg Glu Val Val
35 40 45
Asp Thr Thr Gly Leu Asn Gln Ser His Leu Ser Gln His Leu Asn Lys
50 55 60
Gly Thr Pro Met Lys Thr Gln Lys Arg Ala Ala Leu Tyr Ala Trp Tyr
65 70 75 80
Val Gly Lys Gln Arg Glu Ile Ala Arg Gln Phe Thr His Ala Gly His
85 90 95
Ser Met Ile Thr Asp Asp Met Ser Cys Asp Asp Val Pro Asn Lys Lys
100 105 110
Met Arg Arg Asn Arg Phe Lys Trp Gly Pro Ala Ser Gln Gln Ile Leu
115 120 125
Phe Gln Ala Tyr Glu Arg Gln Lys Asn Pro Ser Lys Glu Glu Arg Glu
130 135 140
Ala Leu Val Glu Glu Cys Asn Arg Ala Glu Cys Leu Gln Arg Gly Val
145 150 155 160
Ser Pro Ser Gln Ala Gln Gly Leu Gly Ser Asn Leu Val Thr Glu Val
165 170 175
Arg Val Tyr Asn Trp Phe Ala Asn Ser Gly Lys Glu Glu Ala Phe Arg
180 185 190
His Lys Leu Ala Met Asp Thr Tyr Asn Gly Gln Gln Ser Ser Ala Gln
195 200 205
Pro Leu Ser Thr His Asp Leu Pro His Gly Lys Thr Pro Gly Phe Arg
210 215 220
Tyr Thr Gln Asp Ser Ser Thr Asp Arg Ser Ala Ala Met Ala Asn Ser
225 230 235 240
Gln Ser Thr Leu Ser Pro Ser Ala Leu Glu Pro Ser His Ile Leu Met
245 250 255
Asn Ser Asp Ser Lys Met Val Pro Val Ser Gly Gly Ser Leu Pro Pro
260 265 270
Val Cys Thr Leu Thr Ala Leu His Ser Leu Asp His Ser Gln His Thr
275 280 285
Leu Gly Gln Thr Gln Asn Leu Ile Met Ala Ser Leu Pro Ser Val Met
290 295 300
Thr Ile Gly Thr Asp Ser Ala Leu Gly Pro Ala Phe Ser Asn Pro Gly
305 310 315 320
Ser Ser Thr Leu Val Ile Gly Leu Ala Ser Gln Thr Gln Ser Val Pro
325 330 335
Val Ile Asn Ser Val Gly Ser Ser Leu Thr Thr Leu Gln Ser Val Gln
340 345 350
Phe Ser Gln Gln Leu His Pro Ser His Gln Gln Pro Ile Val Gln Gln
355 360 365
Val Gln Ser His Met Ala Gln Ser Pro Phe Met Ala Thr Met Ala Gln
370 375 380
Leu Gln Ser Pro His Ala Leu Tyr Ser His Lys Pro Glu Val Ala Gln
385 390 395 400
Tyr Thr Ser Ala Gly Phe Phe Pro Gln Thr Met Val Ile Thr Asp Thr
405 410 415
Ser Asn Leu Gly Thr Leu Thr Ser Leu Thr Pro Ser Lys Gln Val Val
420 425 430
Ser His His Pro Thr Ala His Gly Asp Ser Pro Gly Ser Gln Leu His
435 440 445
Asn Gln Asp Ser Ser Ile Leu His Leu His Pro Ser His Arg Leu Ser
450 455 460
Pro Ile Pro Thr Val Ser Ser Ala Ser Leu Ile His Tyr His Asn Ser

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465                 470                 475                 480
Ser Ser Pro Glu Asn His Ser His Leu Leu Ser Pro Ser His Asn Thr
                485                 490                 495
Ile Asp Ser Phe Ile Ser Thr Gln Met Ala Ser Ser Ser Gln
            500                 505                 510
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<210> 17
<211> 310
<212> DNA
<213> Homo Sapiens

<220>
<221> 5'UTR
<222> (1)...(310)

<400> 17

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gggagccgcg cgggagcagc gcagctacgg cggcggcagc ggcggcgcgg ttgcgattcc      60
gagccgttga gacgcctctg cggcagctgg tggcgcaggt ggcttgcgtg gacgcgggta     120
gaggcgaccg gccagcaacc gcagcgtcgg cgcccgcggc cccggcagca ggcgcgtcgg     180
gacgccccga ggcatcctcc cccgcccgcg ggcccggtag ctgggcccgc gtccgccgcc     240
cgcatccccg cgccgccgca tctcctcgcc gcctcccggg cttcggaccc ccggtctcgc     300
ccccggaaac                                                           310
```

<210> 18
<211> 1461
<212> DNA
<213> Homo Sapiens

<220>
<221> 3'UTR
<222> (1)...(1461)

<400> 18

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ctaggttgac atacctggaa tatagagaac acttgagaag tttgtaatgg ttttcatttg      60
aaatagactg ctggaagttt aaatttttat aagcataggt ttgatgttga aaacttgttt     120
tgagggagaa aatccctttg ttttaaagta aagtaaacat tatcgctaag tgtaacttgt     180
gcagtattaa cagctacatt atacagtaaa tgtgggataa aatccattta gaaaatgtta     240
aactgctttt ccagacatgg ttgtagcata ttttcaatta gtgtgtgtat gttaatgtgt     300
aattgatagt agaacaaagt tacatttta aaactgctac ttgtataaac cttgcctctt      360
ttcccaaata ctgtgggttt tgtgcatagt ttttacaaac cttggattta ccagactgtc     420
ttttcactgt ttgtgggttt tgtagaagtt acacattttt atggtagata aaatgttact     480
tctatacaag tactcactcc ctttttatca aaagttaatt ttaatctcac agtctacatt     540
gtgctacatt atccagcttc tttggaacaa tgtgtgctct gtatggtttt ttttggtatg     600
acaactaatt aagcaactga cattgaactg agaattctac aaactataaa acattaattt     660
ttgaaggtaa tttagttttg tggctgggca ttcagtgaag tcttaggact tctttgcaga     720
caactgactg ggtatatata ggaatgaatc tggctttagg gttaaatcat ttaaggtcct     780
tttataggca ggcactagta actaaaactg aaaactaagt aagtttattt ttgaggaatg     840
ttgttaaaaa tgtctttagg aagtcactaa aacttaattg gaagaaaaaa tcatgatgct     900
tatacaataa atatgaataa atgttatata aggaaactca cctatttgaa atcatggcta     960
tattgttttt attttctaga ttccaaaaat acaaacacta gttgttccag cattgtactt    1020
tgataagtct gtacattgac gtgtatggac taaatccagg gtaaaatcaa tgttacaaaa    1080
tttaagggta tgttaactaa aggatagcat ttctaagata ttttgaatat tagggtcatt    1140
tggcacttct cagcaagtag gatacttctc atgtttttga aattatatga atatggaaaa    1200
aaatggctta agaccagcgt ctctgtatga cattgtgtgg ttgaccctct gagataactg    1260
ttttcatcta cagaattgca tttttgcttt taaagaggtc ttataatgga actaggaatc    1320
```

accgttttga gagaacctgc atatatacca gtcattatct gtttggtcct tatacagttt 1380
taacttactt agatttattc tagttaagcc ataagttcaa cgtgtaaact tgttttcatt 1440
aaagaatttt tctatcaaaa a 1461

<210> 19
<211> 31
<212> DNA
<213> Homo Sapiens

<400> 19
ccccggatcc atgactcgcg atttcaaacc t 31

<210> 20
<211> 31
<212> DNA
<213> Homo Sapiens

<400> 20
tcttgaattc tgtagctgca ggtcgtcctc t 31

<210> 21
<211> 2525
<212> DNA
<213> Homo Sapiens

<300>
<308> U94319
<309> 1997-04-21

<400> 21
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aaggggcaag aggaaaaaca acctaaaaag cagcctaaga aggatgaaga gggccagaag 180
gaagaagata agccaagaaa agagccggat aaaaaagagg ggaagaaaga agttgaatca 240
aaaaggaaaa atttagctaa aacaggggtt acttcaccct ccgattctga agaagaagga 300
gatgatcaag aaggtgaaaa gaagagaaaa ggtgggagga actttcagac tgctcacaga 360
aggaatatgc tgaaaggcca acatgagaaa gaagcagcag atcgaaaacg caagcaagag 420
gaacaaatgg aaactgagca gcagaataaa gatgaaggaa agaagccaga agttaagaaa 480
gtggagaaga agcgagaaac atcaatggat tctcgacttc aaaggataca tgctgagatt 540
aaaaattcac tcaaaattga taatcttgat gtgaacagat gcattgaggc cttggatgaa 600
cttgcttcac ttcaggtcac aatgcaacaa gctcagaaac acacagagat gattactaca 660
ctgaaaaaaa tacggcgatt caaagttagt caggtaatca tggaaaagtc tacaatgttg 720
tttaacaagt ttaagaacat gttcttggtt ggtgaaggag attccgtgat cacccaagtg 780
ctgaataaat ctcttgctga acaaagacag catgaggaag cgaataaaac caaagatcaa 840
gggaagaaag ggccaaacaa aaagctagag aaggaacaaa cagggtcaaa gactctaaat 900
ggaggatctg atgctcaaga tggtaatcag ccacaacata acggggagag caatgaagac 960
agcaaagaca accatgaagc cagcacgaag aaaaagccat ccagtgaaga gagagagact 1020
gaaatatctc tgaaggattc tacactagat aactaggttg acatacctgg aatatagaga 1080
acacttgaga agtttgtaat ggttttcatt tgaaatagac tgctgaaagt tttaaatttt 1140
tataagcata ggtttgatgt tgaaaacttg ttttgaggga gaaaatccct ttgttttaaa 1200
gtaaagtaaa cattatcgct aagtgtactt gtgcagtatt aacagctaca ttatacagta 1260
aatgtgggat ggaatccatt taggaaatgt taaactgctt ttccagacat ggttgtagca 1320
tattttcaat tagtgtgtgt atgttaatgt gtaattgata gtagaacaaa gttacatttt 1380
taaaactgct acttgtataa accttgcctc ttttcccaaa tactgtgggt tttgtgcata 1440
gtttttacaa accttggatt taccagactg tcttttcact gtttgtgggt tttgtagaag 1500

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ttacacattt ttatggtaga taaaatgtta cttctataca agtactcact cccttttat 1560
caaaagttaa ttttaatctc acagtctaca ttgtgctaca ttatccagct tctttggaac 1620
aatgtgtgct ctgtatggtt tttttggta tgacaactaa ttaagcaact gacattgaac 1680
tgagaattct acaaactata aaacattaat ttttgaaggt aatttagttt tgtggctggg 1740
cattcagtga agtcttagga cttctttgca gacaactgac tgggtatata taggaatgaa 1800
tctggcttta gggttaaatc atttaaggtc cttttatagg caggcactag taactaaaac 1860
tgaaaactaa gtaagtttat ttttgaggaa tgttgttaaa aatgtcttta ggaagtcact 1920
aaaacttaat tggaagaaaa aatcatgatg cttatacaat aaatatgaat aaatgttata 1980
taaggaaact cacctatttg aaatcatggc tatattgttt ttattttcta gattcccaca 2040
aatacacaca ctagttgttc cagcattgta ctttgataag tctgtacatt gacgtgtatg 2100
gactaaatcc agggtaaaat caatgttaca aaatttaagg gtatgttaac taaaggatag 2160
catttctaag atattttgaa tattagggtc atttggcact tctcagcaag taggatactt 2220
ctcatgtttt gaaattatat gaatatggaa aaaaatggct taagaccagc gtctctgtat 2280
gacattgtgt ggtgaccctc tgagataact gttttcatct acagaattgc atttttgctt 2340
ttaaagaggt cttataatgg aactaggaat caccgttttg agaggacctg catatatacc 2400
agtcattatc tgtttggtcc ttatacagtt ttaacttact tagatttatt ctagttaagc 2460
cataagttcc acgtgtaaac ttgttttcat taaagaattt ttctatcaaa aaaaaaaaaa 2520
aaaaa                                                              2525

      &lt;210&gt; 22
      &lt;211&gt; 351
      &lt;212&gt; PRT
      &lt;213&gt; Homo Sapiens

      &lt;400&gt; 22
Arg Gly Arg Pro Ala Ala Thr Glu Val Lys Ile Pro Lys Pro Arg Gly
 1               5                  10                  15
Arg Pro Lys Met Val Lys Gln Pro Cys Pro Ser Glu Ser Asp Ile Ile
            20                  25                  30
Thr Glu Glu Asp Lys Ser Lys Lys Lys Gly Gln Glu Glu Lys Gln Pro
        35                  40                  45
Lys Lys Gln Pro Lys Lys Asp Glu Glu Gly Gln Lys Glu Glu Asp Lys
    50                  55                  60
Pro Arg Lys Glu Pro Asp Lys Lys Glu Gly Lys Lys Glu Val Glu Ser
65                  70                  75                  80
Lys Arg Lys Asn Leu Ala Lys Thr Gly Val Thr Ser Pro Ser Asp Ser
                85                  90                  95
Glu Glu Glu Gly Asp Asp Gln Glu Gly Glu Lys Lys Arg Lys Gly Gly
            100                 105                 110
Arg Asn Phe Gln Thr Ala His Arg Arg Asn Met Leu Lys Gly Gln His
        115                 120                 125
Glu Lys Glu Ala Ala Asp Arg Lys Arg Lys Gln Glu Glu Gln Met Glu
    130                 135                 140
Thr Glu Gln Gln Asn Lys Asp Glu Gly Lys Lys Pro Glu Val Lys Lys
145                 150                 155                 160
Val Glu Lys Lys Arg Glu Thr Ser Met Asp Ser Arg Leu Gln Arg Ile
                165                 170                 175
His Ala Glu Ile Lys Asn Ser Leu Lys Ile Asp Asn Leu Asp Val Asn
            180                 185                 190
Arg Cys Ile Glu Ala Leu Asp Glu Leu Ala Ser Leu Gln Val Thr Met
        195                 200                 205
Gln Gln Ala Gln Lys His Thr Glu Met Ile Thr Thr Leu Lys Lys Ile
    210                 215                 220
Arg Arg Phe Lys Val Ser Gln Val Ile Met Glu Lys Ser Thr Met Leu
225                 230                 235                 240
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Phe Asn Lys Phe Lys Asn Met Phe Leu Val Gly Glu Gly Asp Ser Val
245 250 255

Ile Thr Gln Val Leu Asn Lys Ser Leu Ala Glu Gln Arg Gln His Glu
260 265 270

Glu Ala Asn Lys Thr Lys Asp Gln Gly Lys Lys Gly Pro Asn Lys Lys
275 280 285

Leu Glu Lys Glu Gln Thr Gly Ser Lys Thr Leu Asn Gly Gly Ser Asp
290 295 300

Ala Gln Asp Gly Asn Gln Pro Gln His Asn Gly Glu Ser Asn Glu Asp
305 310 315 320

Ser Lys Asp Asn His Glu Ala Ser Thr Lys Lys Lys Pro Ser Ser Glu
325 330 335

Glu Arg Glu Thr Glu Ile Ser Leu Lys Asp Ser Thr Leu Asp Asn
340 345 350